

INDEX *to* "RADIO"

for the Year 1939

Issues 235 to 244, Inclusive

Amateur Newcomer

- Antennas for Beginners.....July, 56
- Low-Cost c.w. Rig.....June, 59
- 112 Mc. Transceiver.....Mar., 59
- Percentage Modulation Meter—
Higgy.....Dec., 60
- Receiver—Transmitter—Broderon ..May, 61
- 2½ Meter Transmitter....Apr., 57; May, 74

Antennas, Feeders and Masts (see also *Ultra-High Frequencies*)

- Analyzing Antenna Performance—
Taylor.....Dec., 40
- Angle of Radiation—Conklin.....Feb., 45
- Bearings and Gears.....Apr., 64
- Beginners' Antennas.....July, 56
- Broad-Band Doublet—Black.....Nov., 39
- Characteristics of Closely Spaced
Antennas—Kraus.....Feb., 9
- Compact-H Beam — Kraus and
Taylor.....Oct., 43
- Compact 3-element Rotary—
Weagant.....July, 34
- Direction Finder Loop.....Jan., 107
- Effective Rotary—W6NKF.....Feb., 19
- Feeder Anchoring System—Dotson ..Mar., 85
- Feeder Developments—ConklinNov., 46
- 4-Element Rotary—Bassett.....May, 41
- Halyard Replacement.....Apr., 77
- Hang it all—Ledin.....July, 46
- Iron Antenna Wire—Smith.....Nov., 25
- Lazy-H Improved—Smith.....July, 23
- Mast Construction—Hoppe.....Nov., 40
- Multi-wire Antennas—Kraus.....June, 21
- Multi-wire Doublets—Kraus.....May, 24
- Novel Direction Indicator—Reed....Jan., 83
- Plywood Tower—Koopman.....May, 21
- Quadridirectional Rhombic—Evans..Apr., 38
- Revolving the Rotary—Wooten....June, 47
- Rotary Beam Photo—W3CHO.....Jan., 111
- Rotary Suggestions—Bolen.....May, 50

- Rotolink Feed—Smith....Oct., 43; Nov., 89
- Square Corner Reflector—Kraus....Mar., 19
- Supporting the Rotary—Moore....Mar., 11
- 3-Element Dimension Chart.....Mar., 68-69
- 3-Element Rotary—Conklin.....Jan., 35
- 3- vs. 2-Element.....May, 74
- Twin-Three Flat-Top Beam—Kraus..Nov., 11

Book Reviews and Catalogs

- Aeronautic Radio—Eddy.....June, 68
- Amateur Radio Handbook—R.S.G.B..Feb., 73
- Amplifier Catalog—ThordarsonJuly, 60
- Applied Acoustics—Olson and Massa..July, 60
- Broadcast Transformers — Thordar-
son.....July, 60
- Catalog—Aerovox.....Nov., 67; Dec., 67
- Catalog—Allied.....June, 68
- Catalog—Bliley.....Dec., 67
- Catalog—Cornell-Dubilier Feb., 86; Dec., 67
- Catalog—Sears.....Dec., 67
- Catalog—Ward.....Dec., 67
- Catalog—Wholesale.....Mar., 71
- Cathode Modulation—Jones.....Dec., 67
- Condensers for Television—Solar...July, 60
- Dictionary of Radio—Spayberry....June, 68
- Electrolytic Capacitors — Cornell-
Dubilier.....Jan., 156
- Essentials of Recording—Allied.....July, 60
- Fundamental Electronics—Albert....Feb., 86
- Handbook of Chemistry and Physics.Oct., 72
- 1940 Encyclopedia—Mallory.....Nov., 67
- Parts Catalog—Hammarlund.....May, 72
- RADIO Handbook.....Nov., 67; Jan., 156
- Radio Amateur's Handbook—
A.R.R.L.....Jan., 158
- Radio Manual—Sterling.....Feb., 73
- Radio Master Encyclopedia—United..June, 68
- Receiving Tube Chart—RCA.....May, 72
- Replacement Guide—Stancor.....June, 68
- Transformer Catalog—Thordarson..May, 72
- Transformer Encyclopedia — Thor-
darson.....June, 84

- Tube Manual—*Taylor* Mar., 71
 Vibrators—*Mallory-Yaxley* July, 60

Calls Heard

Jan., 158; Mar., 71; May, 86; July, 83

Conventions and Hamfests

- Alberta Hamfest July, 75
 Asheville Hamfest July, 87
 Atlanta Hamfest Oct., 68
 Boston Hamfest Oct., 68
 Delaware Valley Hamfest July, 75
 Fresno Hamfest May, 23
 New Jersey Hamfest Apr., 96
 Rochester, N. Y. Feb., 68
 Waterloo, Wisc., Hamfest July, 59

Contests

(see DX)

DX

- Reviving L.F. DX—*Conklin* Feb., 45
 Countries of the World and Prefixes Jan., 136
 DX—*Becker* ... Jan., 125; Feb., 61; Mar., 53;
 Apr., 51; May, 55; June, 53; July, 49;
 Oct., 57; Nov., 53; Dec., 55
 Great Circle Globe—*Woodley* Jan., 81
 RADIO DX Contest Oct., 48
 VK-ZL Contest Results July, 59
 WAZ Honor Roll (see Becker's DX
 Department)

Emergency and Relief Work

- QRR Net June, 97

Expeditions

- Amateur Interest in U. S. Equatorial Islands Jan., 89
 Radio in the Andes Jan., 86

Federal Communications Commission

- Amateur Convictions May, 70
 More Convictions July, 86; Dec., 66
 Mystery Control Jan., 108
 New Amateur Regulations Jan., 105
 Revised Amateur Regulations Jan., 87
 Rulings Apr., 87
 War Warning Nov., 78
 Warning to Hams Afloat Oct., 68
 Warning to Purchasers June, 32

Fiction and Verse

- Brass Widow—*Smith* Feb., 67
 Company—*Knoulton* Dec., 72
 Day Off—*Mrs. W6CME* May, 88
 Death of a Widow—*Hill* Nov., 68
 F.B., O.M.! Jan., 57

- Gone, Alas!—*Benedict* Jan., 109
 Gymnotidae—Push — *Johnson and Mills* July, 68
 Man Bites Snake—*Young* Oct., 70
 Ode to Phone Ham—*VE3ALG* May, 97
 Oil is Well—*Stafford* Jan., 143
 QTE?—*Coe* Mar., 67
 Saga of O.T.—*Trimble* Feb., 92
 Scratchi Jan., 154; Feb., 74; Mar., 73;
 Apr., 66; May, 72; June, 66; July, 60;
 Oct., 72; Nov., 73
 Signal Searching—*W1LSN* May, 69
 63 Mc.—*Tibbets* May, 71
 Tribute to a Transmitter Apr., 65
 Y.L. Trouble—*Weller* June, 70

Five Meters

(see Ultra-High Frequencies)

Hams Across the Sea

- AC4YN—*Becker* Mar., 33
 HS1BJ Jan., 33
 Meet Your DX in Person—
Conklin Nov., 29; Dec., 44
 OQ5AE—*Conklin* July, 88
 VU2AU/G4BL—*Towell* Nov., 44

Hints

- Anti-Jitterer—*G2IS* Feb., 88
 Neon Bulbs Without Resistor May, 23
 Scotch Tape Labels—*W8PH* May, 95
 Wire Bending Tool—*Dickey* July, 82

Meters and Measurements

- Cathode Ray Screens Dec., 67
 Flasher-Type Modulation Indicator
 —*Harrell* Feb., 57
 Frequency Measurement at U.H.F.—
Hayes Dec., 35
 Frequency Spotter—*Dawley* May, 26
 Frequency Standard—*Turner* July, 16
 How Many Turns?—*Franklin* Jan., 50
 Ionospheric Soundings—
Friend Jan., 99; Mar., 69
 Monitor-Frequency Meter—
Broderson Nov., 58
 Monitor-Frequency-Meter—*Kime* ... Apr., 35
 Multimeter Measurements—
Silverman Mar., 24; May, 70
 Multi-Metering—*Willes* July, 37
 Percentage Modulation Meter—
Higgy Dec., 60
 Precision Frequency Monitor—
Browning and Gaffney Oct., 44
 Pulsing Amateur Transmitters for
 Ionosphere Soundings—*Friend* .. Feb., 28
 Reactance-Frequency Chart—*Pickett* . Jan., 90

Receiving Pulses from the Ionosphere—*Friend* Apr. 24; June, 90
Simplified Rig Checker—*Barker* Oct., 53

Miscellaneous

British Situation Dec., 66
Carrier Current Radio—*Hall* July, 76
Carrier-Operated Remote Control—*Waller* Nov., 36
Code of Conduct — *Washington Radio Club* Dec., 70
Contributions to RADIO Jan., 94
Danger—High Voltage Jan., 82
400-Watt Diathermy Jan., 59
Foreign QSL's Mar., 78
Great Circle Globe—*Woodley* Jan., 81
How Many Turns?—*Franklin* Jan., 50
Increasing Your Copying Speed—*Reed* May, 37
Inexpensive d.c. Relays—*Grening* Dec., 42
Just a Decade Ago May, 80
Meet Your DX in Person—*Conklin* Nov., 29; Dec., 44
Memorizing the Code—*Ledin* Jan., 85
Memorizing the Color Code — *Morrison* Jan., 84
Model Airplane Radio Control—*Rockwood* Oct., 19
"Q"—*Burgess* May, 31
Radio as a Profession—*Leutz* June, 25
Radio with the Airlines — *Durkovic* Jan., 64; Mar., 36
Resurrecting the d.c. Relay—*Burnett* May, 52
Six Hundred Volts—*Crowley* Nov., 48
Television in San Francisco July, 28
Voice of the DC-4—*Owens* Oct., 11
War and Amateur Radio Oct., 68
W9XTA Ham Forum July, 59
W6XEJ and the Contender—*Becker* Oct., 28
You're in the Movies Now—*Kearney and Johnson* May, 34

Mobile

(see *Radiotelephony, Receiving, Transmitting, U. H. F.*)

New Apparatus

Amateur Transmitter—*Hallicrafters* Jan., 150
Auto Attachment—*Katolite* Apr., 67
Bandswitch—*Heintz & Kaufman* July, 72
Bridge—*Aerovox* Jan., 152
Bud Items Apr., 67
Code Records—*Ralston* Jan., 152
Coil Repair Service—*Meissner* Apr., 93
Coil Turrets—*B & W* Oct., 75
Coils—*Bud* May, 81; Oct., 74
Compensated Velocity Mike—*Amperite* Jan., 150

Constant Velocity Tone Record—*Universal* May, 82
Converter Kit—*Wholesale* May, 73
Crystal Mike—*Turner* Nov., 61
Dynamic Mike—*American* May, 81
Dynamic Mike—*Turner* Dec., 68
Exciter Tuning Unit—*Hammarlund* June, 67
5-10—*Hallicrafters* Mar., 72
Frequency Meter-Monitor — *Guthman* Apr., 67
Frequency Standard—*Browning* Dec., 68
Heat Radiating Connectors—*Wunderlich* July, 74
Heterofil—*Millen* Nov., 61
HT-7 Frequency Standard—*Hallicrafters* Oct., 74
Low-loss Mica Condensers—*Aerovox* Dec., 68
Lucite—*DuPont* May, 82
Midget Transformer—*Thordarson* June, 67
Mobile Mike — *Universal* Dec., 68
Multi-Range Wave Trap—*RCA* June, 67
Multi-Ratio Transformers—*Stancor* June, 67
Oscillator Standard—*Browning* Oct., 74
Permeability Tuner—*Aladdin* July, 72
Receiver—*Breting* Oct., 76
R. F. Relay—*Gordon* Mar., 72
Skyrider "Defiant"—*Hallicrafters* Dec., 68
Skyrider 23—*Hallicrafters* May, 73
3-Way Mike—*RCA* June, 67
Tinytran—*Stancor* Oct., 76
Transformers—*Thordarson* Apr., 67
Transmitter—*Hallicrafters* Jan., 150
Transmitter Kit—*Stancor* Jan., 150
20-Meter Crystal—*Monitor* July, 74
20-watt Amplifier—*Thordarson* July, 72
U.H.F. Condenser—*Cardwell* July, 73
Velocity Mike—*Universal* Nov., 61
Vibrapacks—*Mallory* July, 72
XEC Unit—*Radio-Television* July, 74

Open Forum

Auto Licenses—*W8SS* Mar., 74
Canada in Wartime—*VE4VH* Dec., 70
Centertapped Filaments—*W8LNS* July, 61
Chair Warmers—*ex W7TG* Jan., 162
Engineers?—*Brown* Mar., 74
40 Meter B.C.—*W6PRM* June, 66
40 Meter B.C.—*VK2NO* June, 86
Hanging Beam—*Sokolovsky* Nov., 80
January Index—*Hall* July, 80
Lids—*W3GHB* Feb., 87
Phone Break-in—*Blain* Apr., 66
Portable Hint—*W8GDC* Nov., 80
Redistributing QSL's—*W3AZT* May, 74
75 M. Phone DX—*ZL1KN* June, 86
73 License Plate—*W6UC* July, 61
South American Phones—*W8PBF* Jan., 162
Superhet Trouble—*W7CVQ* Jan., 162
29-30 Mc.—*Harris* Feb., 74

Portable

(see *Radiotelephony, Receiving, Transmitting, U.H.F.*)

Postscripts

Jan., 160; Mar., 69; Apr., 64; May, 70; July, 59; Oct., 68; Dec., 66

Question Box

Mar., 73; May, 74

Radioddities

Radioddities are scattered throughout all issues

Radiotelephony

(see also *Transmitting, U.H.F., and Meters and Measurements*)

- A.C.-D.C. Amplifier—Turner Feb., 20
 Applying the 811 and 812 Nov., 18
 Aural Compensation—Hall Dec., 51
 Automatic Modulation Control Bias
 —Jones June, 26
 Cathode Modulation—Jones Oct., 14
 Cathode Modulation Operating Data..... Dec., 16
 Control System for c.w. or Phone..... Dec., 52
 Duo-Power Modulator—Reed Dec., 19
 Extended Positive Peak Modulation
 —Smith and Dawley Dec., 11
 Flasher-Type Modulation Indicator—
 Harrell Feb., 57
 Grid Modulated Phone—Goode Mar., 45
 Inexpensive 25-Watt Modulator —
 Dawley Jan., 72
 Modern Speech Amplifier Design —
 Fortune Jan., 46
 100-Watt Phone—Jones... Jan., 38; Mar., 69
 Optimum Speech Characteristics ... July, 44
 Parasite Elimination—Boyd June, 38
 Phone Break-in—Williams July, 40
 Reducing Splatter in Phone Trans-
 mitters—Dawley Dec., 33
 Series Cathode Modulation—Dawley..... Dec., 24
 250-Watt Transmitter—Wolfe Feb., 48

Receiving

(see also *Ultra-High Frequencies*)

- Amplifier—Patterson Feb., 38
 Aural Compensation—Hall Dec., 51
 Band-Box—Broderon May, 61
 Bandpass Phone Superhet—Adams .. June, 41
 C.W. Super for DX—Norton Jan., 11
 Communications Receivers for 1939. Jan., 29
 Converter Design — Dawley and
 Norton May, 9
 Direction Finder Loop Jan., 107
 Gain in R.F. Stages—Conklin Mar., 43

Improved U.H.F. Receivers—Reber
 and Conklin Jan., 17

- Inexpensive DX—Milles Jan., 26
 Mobile Hints—Adams Apr., 41
 R-C Superhet—Jones Mar., 15
 Receiver Kit—Silver May, 46
 Ten Meter Auto-Radio Converter—
 Gonsett Jan., 52; Feb., 68; Apr. 64
 Tuning Indicator for Plate Detectors
 Vogel Mar., 44

Ten Meters

(see *Ultra-High Frequencies*)

Transmitting

(see also *Radiotelephony, Tubes, and Ultra-High Frequency*)

- Applying the 811 and 812 Nov., 18
 Automatic Excitation Control—John-
 son Apr., 48
 Auto-Resonator Transmitter — Eitel
 and McCullough June, 9; July, 75
 Band-Box—Broderon May, 61
 Choosing the Swinging Choke—Mor-
 gan Dec., 39
 Class-C Grid Excitation—Jones Nov., 15
 Compact Coil Switching—Moran .. Nov., 26
 813 Bandswitching Transmitter —
 Norton Apr., 9
 Electron Coupled Exciter—Norton .. July, 11
 Filament Tubes in Mobile Transmit-
 ter—Dawley July, 29
 5-Band Coil-Switching Exciter —
 Jones May, 38
 56 Mc. Transmitter-Exciter—Roth-
 man Jan., 23
 400-Watt Transmitter—Davis June, 28
 4-25 DeLuxe—W8DLR July, 43
 High Efficiency Doubling—Jones ... Apr., 13
 Inductive-Tuned 75T Amplifier... July, 33
 Kilowatt on the New 810's Jan., 62
 Low-Cost c.w. Rig June, 59
 Mobile Hints—Adams Apr., 41
 Multi-Metering—Milles July, 37
 On the Care and Feeding of 807's—
 Smith Jan., 75
 100 Watts per Cubic Foot—Ryder .. Feb., 23
 100 Watts with Bandswitching—
 Shuart May, 17
 160 M. Variable Frequency Exciter—
 Smith Dec., 29
 Parasite Elimination—Boyd Jun, 38
 Parasitic Elimination—Jennings .. Mar., 49
 Pidgee Transmitter—Woehr Dec., 36
 Portable All - Band Transmitter—
 Reed Apr., 17
 Push Button Control—Sheffield Feb., 35
 Conquering the Q—Burgess May, 31

Rebuilding Collins for 28 Mc.— <i>Boyd</i>	Apr., 30
Remote Control Switching— <i>Gleed</i>	Feb., 42
Remote Control Tuning— <i>Carroll</i> ..	June, 48
Screen Voltage on Tetrodes	Feb., 41
Semi-Skeleton Amplifier— <i>Van Ars-</i> <i>dale and Moran</i>	Mar., 40
Short-Circuited Turns— <i>Selvidge</i>	Oct., 51
Simplicity at 56 Mc.— <i>South</i>	Apr., 46
Stabilizing the E.C.O.— <i>Berry</i>	Nov., 50
Switching Crystals	Jan., 56
Touch to Transmit— <i>Williams</i>	Nov., 49
250-Watt Transmitter— <i>Wolfe</i>	Feb., 48
Two Watts on the Hoof— <i>Boyd</i>	Jan., 77
XEC Transmitter Control— <i>Perrine</i> ..	June, 14

Tubes

811 and 812	Nov., 18
810's for a Kilowatt	Jan., 62
828	Nov., 90
G.O.K.; an Ideal Tube— <i>Stafford</i>	Jan., 43
GT-type Tubes	May, 73; July, 72
HK24	Jan., 97
957, 958, 959 Acorns— <i>RCA</i>	Mar., 72
1620, 1621, 1622, T9 Glass	Apr., 93
R. F. Gain— <i>Conklin</i>	Mar., 43
75T Amplifier	July, 33
T9 Glass Tubes	May, 73

Ultra-High Frequencies

(see also *Antennas, Radiotelephony, Receiving, Transmitting, Tubes*)

British 56 Mc. Tests	July, 59
British Summer 28 Mc. Tests	July, 59
Converter Design— <i>Dawley and Nor-</i> <i>ton</i>	May, 9
1852 Converter— <i>Conklin and Rueb-</i> <i>hausen</i>	July, 26
56 Mc.— <i>Conklin</i> (see U.H.F. Depart- ment)	
56 Mc. DX Field Day	May, 70

56 Mc. Transmitter-Exciter — <i>Roth-</i> <i>man</i>	Jan., 23
Frequency Measurement— <i>Hayes</i>	Dec., 35
Gain in R.F. Stages— <i>Conklin</i>	Mar., 43
Improved U.H.F. Receiver— <i>Reber</i> and <i>Conklin</i>	Jan., 17
Mobile Transmitter with Filament Tubes— <i>Dawley</i>	July, 29
Mobile Tuning Hint— <i>W6DJZ</i>	Mar., 36
112 Mc.— <i>Conklin</i> (see U.H.F. De- partment)	
112 Mc. Transceiver	Mar., 59
Portable Mobile Equipment— <i>Gon-</i> <i>sett</i>	Mar., 37
R-C Superhet— <i>Jones</i>	Mar., 15
R. F. Stages— <i>Conklin</i>	Nov., 22
Rotary Vertical W8JK— <i>Ledin</i>	July, 46
Square Corner Reflector— <i>Kraus</i> ...	Mar., 19
Taking 10 for a Ride— <i>Gonsett</i>	Feb., 54
Transcontinental 56 Mc. DX Again — <i>Conklin</i>	Oct., 38
Transmission Lines as Circuit Ele- ments— <i>Conklin</i>	Apr., 43; May, 43; June, 33
Transmitter Simplicity at 56 Mc.— — <i>South</i>	Apr., 46
28 Mc.— <i>Conklin</i> (see U.H.F. De- partment)	
28 Mc. in Great Britain— <i>Corry</i>	Jan., 132
2½ Meter Transmitter ..	Apr., 57; May, 74
200 Crystal Watts on 56 Mc.	Jan., 97
250-Watt Phone— <i>Wolfe</i>	Feb., 48
224 Mc.— <i>Conklin</i> (see U.H.F. De- partment)	
Ultra - Sensitive Receiver — <i>Avery</i> and <i>Conklin</i>	June, 33
U.H.F. Department — <i>Conklin</i> ..	Jan., 139, 160; Feb., 68, 72; Mar., 64, 90; Apr., 60; May, 66, 90, 95; June, 63, 91; July, 62, 66; Oct., 38, 64; Nov., 62; Dec., 62.

Yarn of the Month

(see *Fiction*)

The Marketplace

Classified Advertising

(a) Commercial rate 10c per word, cash with order; minimum, \$1.00. Capitals: 13c per word. For consecutive advertising, 15% discount for 3d, 4th, and 5th insertions; 25% thereafter. Break in continuity restores full rate. Copy may be changed as often as desired.

(b) Non-commercial rate: 5c per word, cash with order; minimum, 50c. Available only to licensed amateurs not trading for profit; our judgment as to character of advertisement must be accepted as final.

(c) Closing date (for classified forms only): 25th of month; e.g., forms for March issue, published in February, close January 25th.

(d) No display permitted except capitals.

(e) Used, reclaimed, defective, surplus, and like material must be so described.

(f) Ads not relating to radio or radiomen are acceptable but will be grouped separately.

(g) No commissions nor further discounts allowed. No proofs, free copies, nor reprints sent.

(h) Send all Marketplace ads direct to Santa Barbara accompanied by remittance in full payable to the order of Radio, Ltd.

PRACTICAL Radio and Communication Engineering Course for Home Study offered by Smith Practical Radio Institute, Department R10, 1311 Terminal Tower, Cleveland, Ohio. Information Booklet Free.

TRANSMITTING TUBES REPAIRED Save 60%. Guaranteed work. **KNORR LABORATORIES**, 5344 Mission St., San Francisco, Cal.

QSL's—Samples, Brownie, W3CJI, 523 North Tenth Street, Allentown, Pennsylvania.

AC Generators and plants. Have some good buys in used machines. Ideal for emergency. **Katolight, Inc.**, Mankato, Minnesota.

CRYSTALS Commercial-Amateur. Literature upon request. **Angelus 7310, C-W Manufacturing Co.**, 1170 Esperanza, Los Angeles, California.

MOBILE transmitter cabinets. Any size. See article in this issue on Police Radio. Cabinets, Racks, Panels, Chassis. **Specials. R. H. Lynch**, 970 Camulos, Los Angeles, Calif.

QSL's—Quality Workmanship. Neatest designs! **Fritz**—455 Mason, Joliet, Illinois.

CRYSTALS in plug-in heat dissipating holders. Guaranteed good oscillators. 160M—80M \$1.25. (No Y Cuts) 40X \$1.65. 80M Vari-frequency (5 Kilocycle variance) complete \$2.95. State frequency desired. C.O.D.'s accepted. **Pacific Crystals**, 1042 South Hicks, Los Angeles, Calif.

METERS, microphones, pickups, repaired—**W9GIN**, 2812 Indiana, Kansas City, Missouri.

QSL's—By **W8NOS**—"The QSL Craftsman"—13 Swan St., Buffalo, N. Y.

814 EXCITER or transmitter, figures 22-25 chapter 11 1940 **RADIO Handbook**. \$35 less tubes. \$50 with tubes. F.o.b. **Radio Ltd.**, 1300 Kenwood Rd., Santa Barbara, Calif.

SEASONAL Greetings! Start the New Year right with **PRECISION** transformers. Complete line for amateurs. Chokes, filament, plate and modulation transformers. Write for literature. Buy direct for less! **PRECISION TRANSFORMER CO.**, Muskegon, Michigan.

RECONDITIONED guaranteed receivers and transmitters. Practically all models cheap. All shipped on ten-day trial. Terms. List free. **W9ARA**, Butler, Missouri.

RADIO KITS—\$3.95 up. Complete. Single band; all-wave; 5-10 tubes. Save 50%. Radio and parts catalog—**FREE**. **McGee Radio**, P-2015, K. C., Mo.

CRYSTAL OVENS adaptable any round holder 2x1 inches or less. Specify 6.3 or 2.5 voltage. \$1.50 postpaid. **Sodaro Manufacturing**, 1115 North Lockwood, Chicago, Ill.

EQUIPMENT CONSTRUCTED—Any apparatus described in current magazines, constructed as described. **Coxie's Electric Service**, Rushville, Indiana.

QSL's?? SWL's?? Printed to your specifications!! Samples free. **W8DED**, Holland, Michigan.

NATIONAL NTX-30 transmitter with two 4-in-1 xtal holders, fixture for e.c.o. connection, \$95; **Harvey UHX-10** transmitter and **UHX-10P** coils for all bands, \$90; **NC-100A** receiver, (conversion) \$85; **National NSA** speech amplifier, \$55; **Weissner Signal Shifter** with 80 meter coils, \$30; fob Seattle. **W7GXP**.

WANTED Metal relay rack—**DC SW3—W3FIS** Phillipsburg, N. J.

FOR SALE: 250 Watt xmitter, **Sky Champion**, **Weston Test Kit**, etc. Write for list, prices. **W6LJE**, 1814 Del Mar, Fresno, Cal.

421 EXCITER or transmitter described in chapter 11 of 1940 **RADIO Handbook**. \$29.50 including 10, 20, 40, 80, and 160 meter coils, less tubes, crystal, and power supply. Price f.o.b. **Radio Ltd.**, 1300 Kenwood Rd., Santa Barbara, Calif.

SACRIFICE Complete KW, CW xmitter. First feller with \$110.00 takes it. **W7CGL**, 501 1/2 North 31st, Billings, Mont.

SELL Model **CRA Clough-Brengle** 3 inch oscilloscope with all tubes \$45. Excellent condition. **W6IH**.

USED receivers, Xmters, tubes and parts of all kinds, bought, sold and swapped. **Northwest Used Radio Supply Co.**, 8547-18th Northwest, Seattle, Washington. **W7DVY**.

SELL—9' x 7' Ham Shack. Rain proof, knock down, easily moved. **W6JNE**, 1224 Muriel St., Compton, Calif.

FOR SALE—Several new phone transmitters of various designs with carrier outputs between 75 and 200 watts. Only one of each type available at cost prices. **Frank C. Jones**, **W6AJF** 2037 Durant Ave., Berkeley, Calif.

THREE TUBE SUPERHET figure 6 chapter 6 **RADIO Handbook** (1940 edition) with dynamic speaker. Less tubes and power supply. \$15 f.o.b. **Radio Ltd.**, 1300 Kenwood Rd., Santa Barbara, Calif.

ana,

Buf-

940
o.b.

ECI-
fila-
ure.
gon,

cally
List

5-10
cGee

or
daro

cur-
ctric

free.

ders,
itter
vier,
snet
XP.

. J.

Kit,
Cal.

940
160
o.b.

0.00

all

ught,
547-

asily

signs
e of
SAJF

book
power
Santa